802.11g USB 2.0 Adapter

Model # AWLL3026

User's Manual

Ver. 1A

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Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

FCC Caution

This equipment must be installed and operated in accordance with provided instructions and a minimum 5 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

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1. Introduction

The **802.11g USB 2.0 Adapter** (hereafter called USB adapter), compliant with IEEE 802.11b/g, is a high-efficiency wireless adapter for wireless networking at home, in office, or in public places. This USB adapter connects directly to any USB-ready desktop/notebook computers, so that you can share files, printers, and high-speed access to the Internet over your existing wireless network easily, without disassembling your computer.

The USB adapter has a data rate of up to 54Mbps, and can auto-negotiate to 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1Mbps to be compatible with any IEEE 802.11b/g device.

The USB adapter is compatible with Windows 98SE/ME/2000/XP and can be used in either **Ad-hoc mode** (computer-to-computer, without a wireless router) or **Infrastructure mode** (computer-to-wireless router, a wireless router is required).

1.1 Features

- With the IEEE 802.11g 2.4GHz (OFDM) standard
- High data transfer rate - up to 54Mbps
- Supports 64/128/256-bit WEP and WPA data encryption security
- Supports peer-to-peer communication among any wireless users, no Access Point required
- Automatic fallback increases data security and reliability
- Supports the most popular operating systems: Windows 98SE/ME/2000/XP
- Portable and mini-size design
- Suitable for any IBM-compatible notebook or desktop PC

1.2 Package Contents

Before you begin the installation, please check the items of your package. The package should include the following items:

- One Wireless USB Adapter
- One USB Extension Cable
- One Quick Installation Guide
- One Driver & Utility CD (with User's Manual)

If any of the above items is missing, contact your supplier as soon as possible.

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2. Installation Procedures

2.1 Install Utility Software

Note: Before installing the utility software, **DO NOT** insert the USB adapter into your computer. If the adapter is inserted already, Windows will detect the adapter and request for a driver. Click **Cancel** to quit the wizard and remove the adapter from your computer.

Step 1 Insert the provided Driver and Utility CD into your CD drive.

Step 2 Click **Install Driver and Utility** from the Setup menu.

Note: If the Setup menu does not appear automatically, go to **Start**, **Run**, type **D:\autorun.exe** (where **D** is the letter of your CD drive) and click **OK**.

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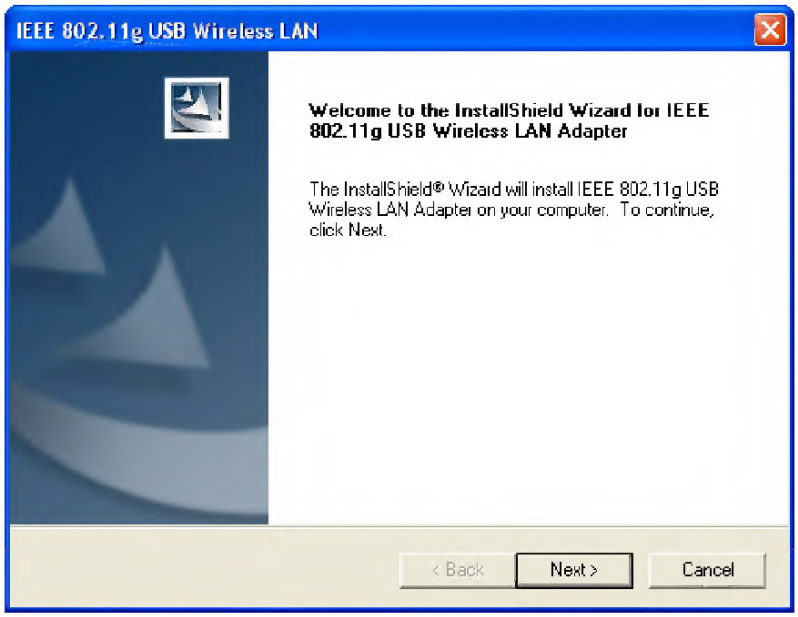
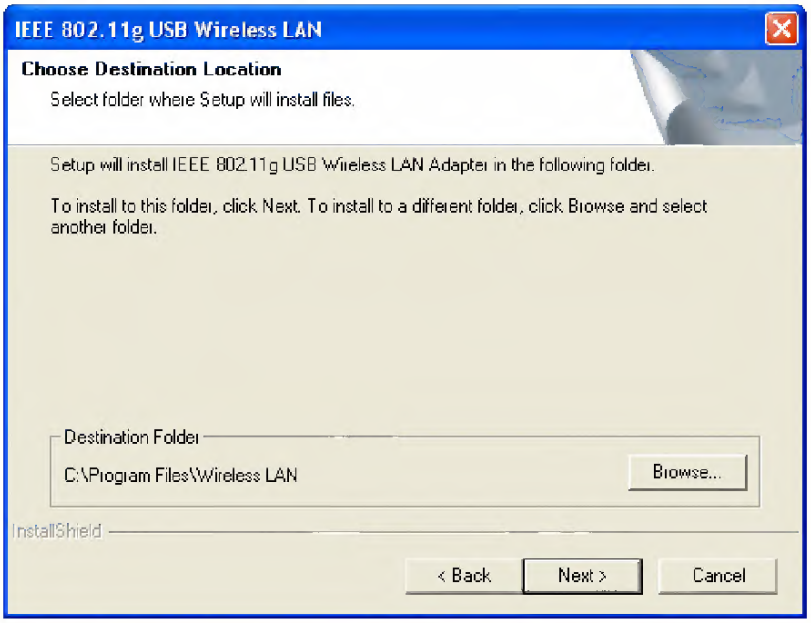
Step 3 Click **Next** at the welcome screen.


IEEE 802.11g USB Wireless LAN
Welcome to the InstallShield Wizard for IEEE 802.11g USB Wireless LAN Adapter
The InstallShield® Wizard will install IEEE 802.11g USB Wireless LAN Adapter on your computer. To continue, click Next.
< Back
Next >
Cancel

Step 4 Click **Next** to accept the default destination location for the driver to be installed in or click **Browse** to select the desired location.


IEEE 802.11g USB Wireless LAN
Choose Destination Location
Select folder where Setup will install files.
Setup will install IEEE 802.11g USB Wireless LAN Adapter in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\Wireless LAN
Browse...
InstallShield
< Back
Next >
Cancel

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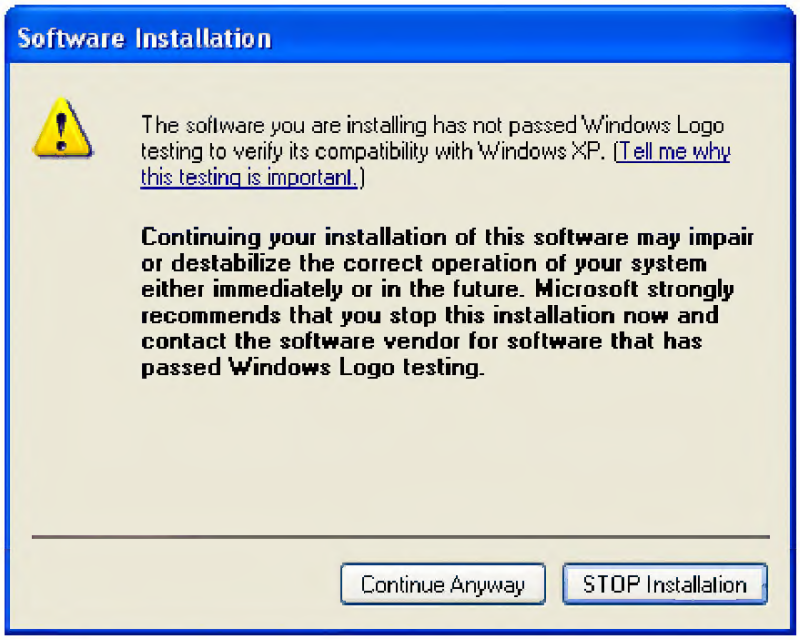
Step 5 For Windows XP, click **Continue Anyway** at the Windows Logo Compatibility screen.


Software Installation
The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

For Windows 2000, click **Yes** at the Digital Signature screen.

Digital Signature Not Found
The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.
If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.
Do you want to continue the installation?
Yes
No
More Info

Step 6 Remove the Driver & Utility CD from your CD drive and then restart your computer.

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2.2 Install Driver

Note: In most cases, Windows will automatically install the driver after the computer is restarted. If the Found New Hardware Wizard appears, follow the instructions below. The Found New Hardware Wizard will look different depending on your operating system. Follow the on-screen instructions to complete the installation. For Windows 98SE and ME users, you may be prompted to insert the Windows 98SE or ME CD during the driver installation. Be sure to have your Windows 98SE or ME CD ready.

Step 1 After the computer is restarted, insert the USB adapter into the USB port of the computer. If there is not enough room to insert the adapter directly to the USB port, you may use the supplied USB extension cable for more space.

Step 2 Select **Install the software automatically** and click **Next**.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
IEEE 802.11g USB Wireless LAN
If you hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Step 3 For Windows XP, click **Continue Anyway** at the Windows Logo Compatibility screen.

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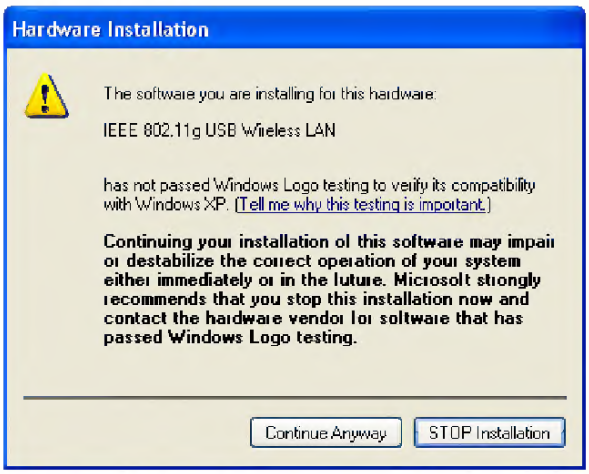
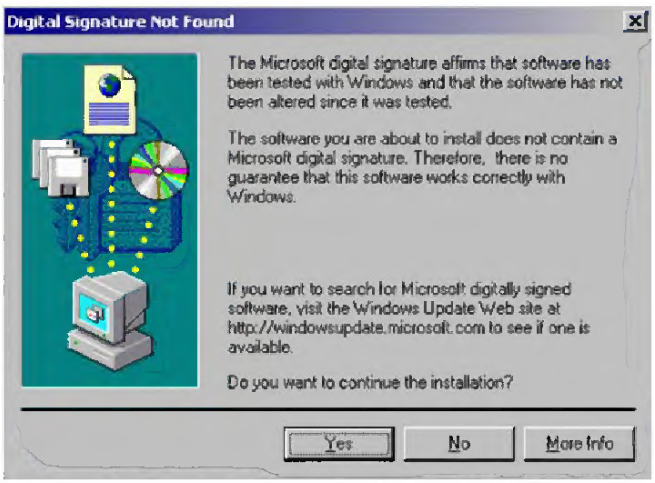

Hardware Installation
The software you are installing for this hardware:
IEEE 802.11g USB Wireless LAN
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

For Windows 2000, click **Yes** at the Digital Signature screen.


Digital Signature Not Found
The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.
If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.
Do you want to continue the installation?
Yes
No
More Info

For Windows 98SE or ME, insert the Windows 98SE or ME CD if prompted to do so and click **OK**.

Step 4 Click **Finish**. Restart the computer if you are prompted to do so.

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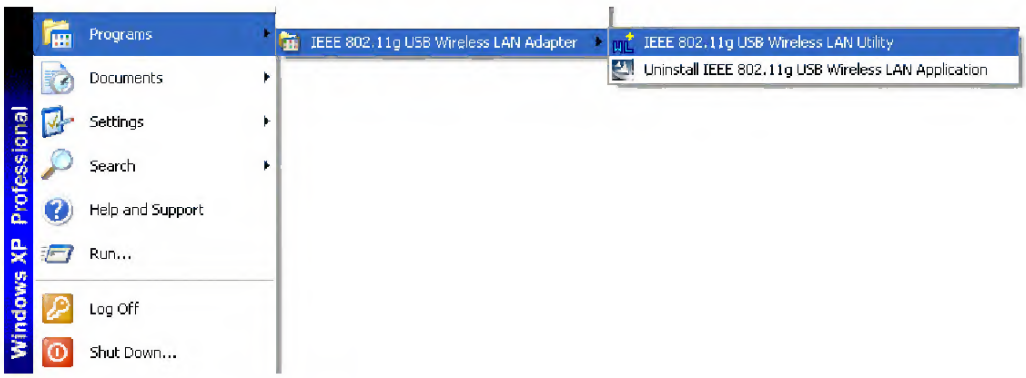
3. Configuring USB Adapter as a Wireless Client

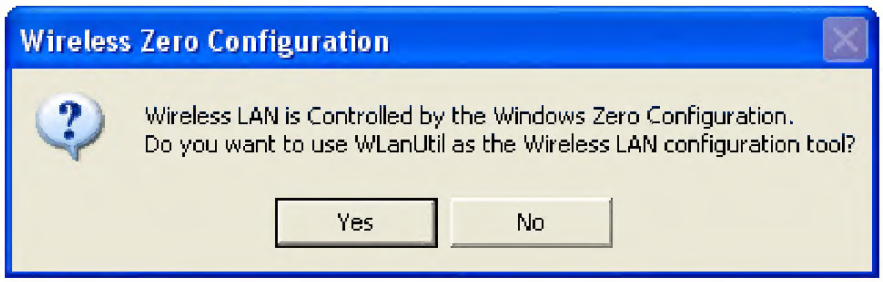
The USB adapter can be set to either **Station** or **Access Point** Mode from the **Mode** drop-down menu. **Station** mode is the default selection and should be selected if you want to connect to a wireless router/access point or conduct peer-to-peer networking.

To open the utility, go to **Start**, **(All) Programs**, **IEEE 802.11g USB Wireless LAN Adapter**, **IEEE 802.11g USB Wireless LAN Utility**.



Note to Windows XP Users:

If you encounter the Wireless Zero Configuration dialog box, click **Yes** to enable the Wireless LAN Utility to configure your USB adapter.


Wireless Zero Configuration
Wireless LAN is Controlled by the Windows Zero Configuration.
Do you want to use WLanUtil as the Wireless LAN configuration tool?
Yes
No

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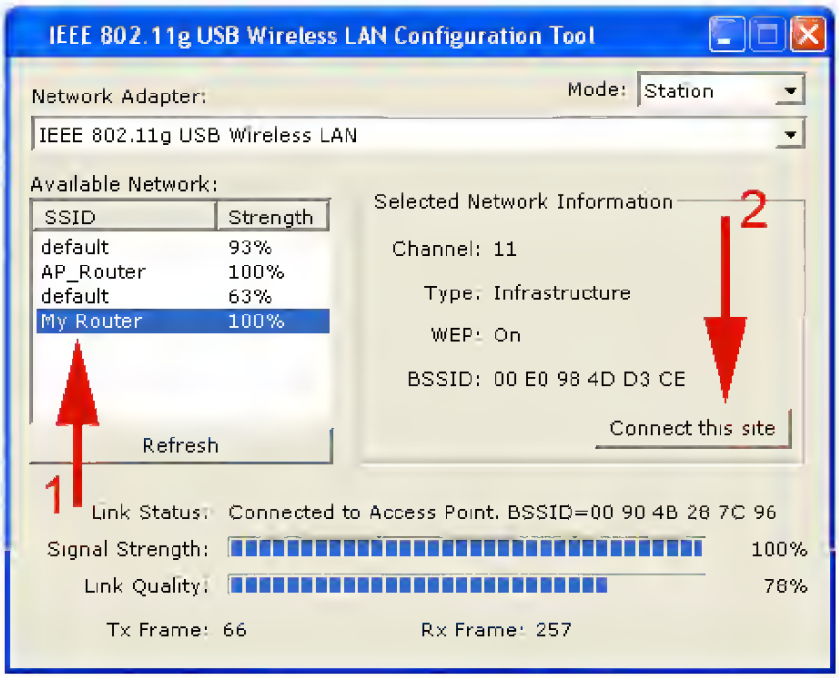
Step 1 Select the **SSID** of your wireless router/access point from the Available Network list and click on the **Connect this site** button.



Step 2 Verify that the adapter has adequate **Signal Strength** and **Link Quality** and then restart the computer.

Mode: Select from **Station** or **Access Point**. For more information regarding Access Point, please refer to the next section, **4. Configuring USB Adapter as an Access Point.**

Network Adapter: Displays the name of the USB adapter.

Available Network: Lists all the available wireless router/access point in your area. You can click on the **Refresh** button to update the list.

Selected Network Information: Displays the network information for the currently selected SSID. (An SSID must be highlighted first).

Link Status: Displays the current link status.

Signal Strength: Displays the current signal strength.

Link Quality: Displays the current link quality.

Tx Frame: Displays the number of frames transmitted.

Rx Frame: Displays the number of frames received.

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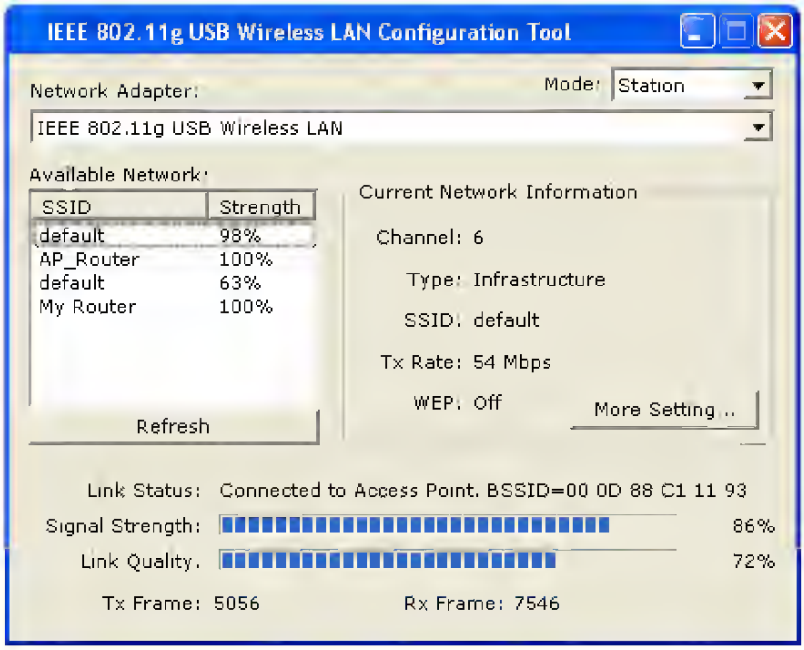
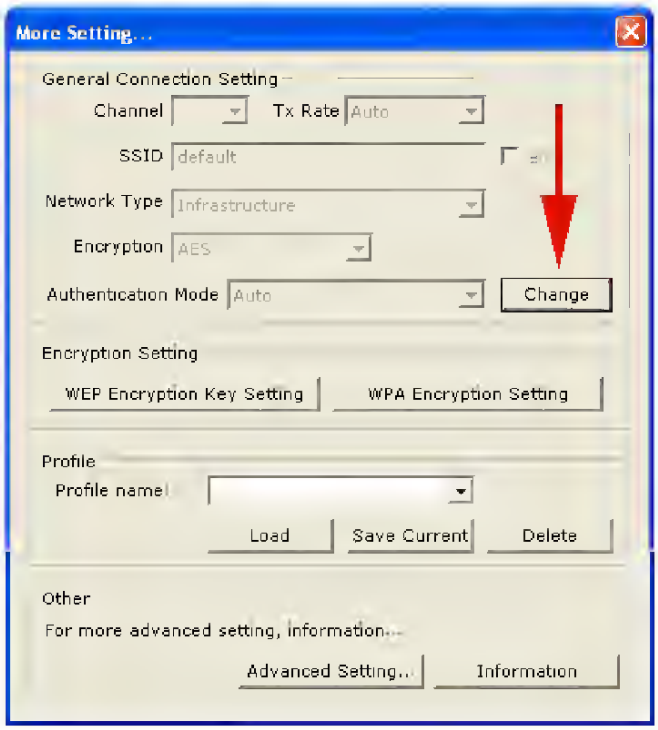


Current Network Information: Displays the network information of the wireless router/access point that the USB adapter is currently connected to.

More Setting: Click on this button to access the USB adapter's configuration settings, including WEP and WPA encryption settings.



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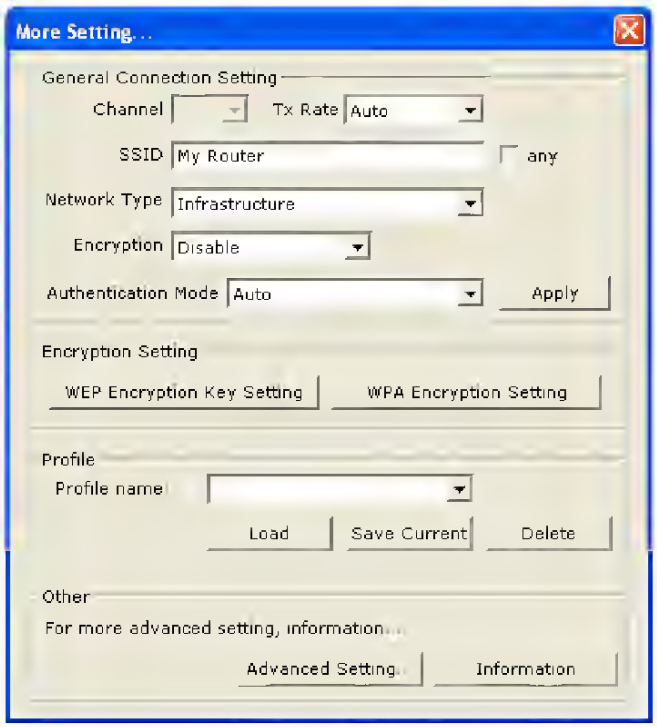
3.1 Configuring General Settings

Click **Change** to configure the adapter's **General Connection Setting**.



Channel: This setting is for **Access Point Mode** only.

Tx Rate: Select the desired transmission rate, or leave the default setting of **Auto** to allow the adapter to automatically select the optimum rate.

SSID: You can manually enter the SSID of the wireless router/access point you wish to connect to.

Any (check box): Allows you to connect to any available wireless router/access point. (Check this box if you're trying to connect to a public hot spot and don't know the SSID).

Network Type: Choose from **Infrastructure** (for connecting to a wireless router/access point) or **Ad-Hoc** (for computer-to-computer networking, bypassing the wireless router/access point).

Encryption: Choose from **Disable WEP**, or **Enable WEP**.

Authentication Mode: Choose from **Auto** (recommended), **Open System**, or **Shared Key**.

Click **Apply** to save the changes.

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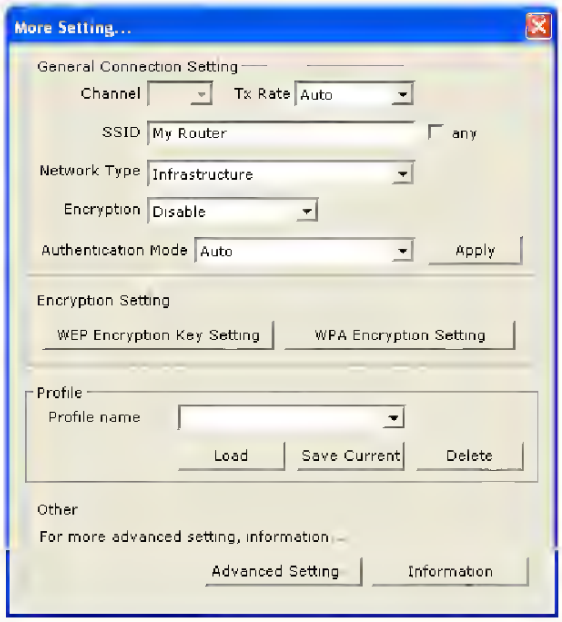
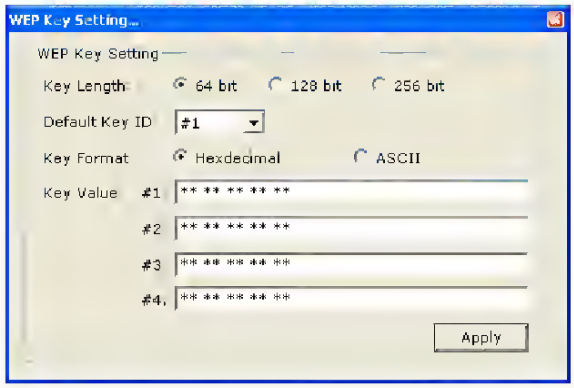
3.2 Configuring Encryption Security

Click **WEP Encryption Key Setting** to configure the WEP settings.



Click **Change** to configure the WEP Key Setting and then click **Apply** to save the settings.

Note: The WEP Key settings must be identical to the WEP settings of the wireless router/access point you wish to connect to.



Key Length: Select the appropriate encryption key length.

Default Key ID: Select which of the four Key Value you want to use.

Key Format: Select either Hexadecimal (0-9, A-F) or ASCII (any number or letter).

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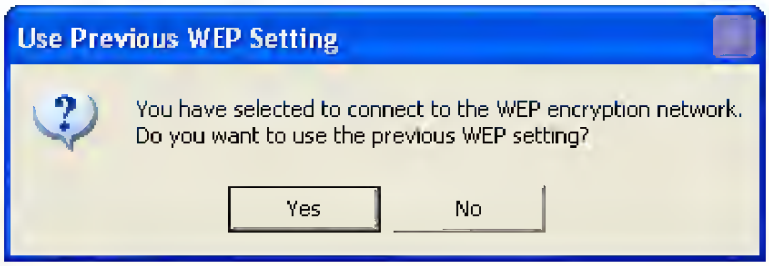
Key Value: Enter the applicable key values. Up to four key values may be entered. Note the following rules when entering Key values:

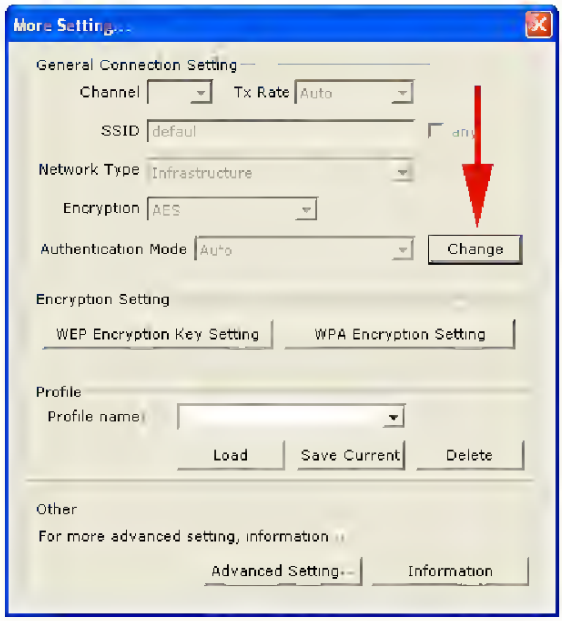
- **64-bit** key length requires **10** Hexadecimal characters (0-9, A-F) or **5** ASCII characters (any number or letter).
- **128-bit** key length requires **26** Hexadecimal characters (0-9, A-F) or **13** ASCII characters (any number or letter).
- **256-bit** key length requires **58** Hexadecimal characters (0-9, A-F) or **19** ASCII characters (any number of letter).

After you have applied the changes, return to the utility's main screen and select the wireless router/access point you wish to connect to.

Click **Yes** at the **Use Previous WEP Setting** dialog box to connect to the encrypted wireless router/access point.


Use Previous WEP Setting
You have selected to connect to the WEP encryption network.
Do you want to use the previous WEP setting?
Yes
No

If you want to use WPA encryption, click on **Change** in the General Connection Setting.



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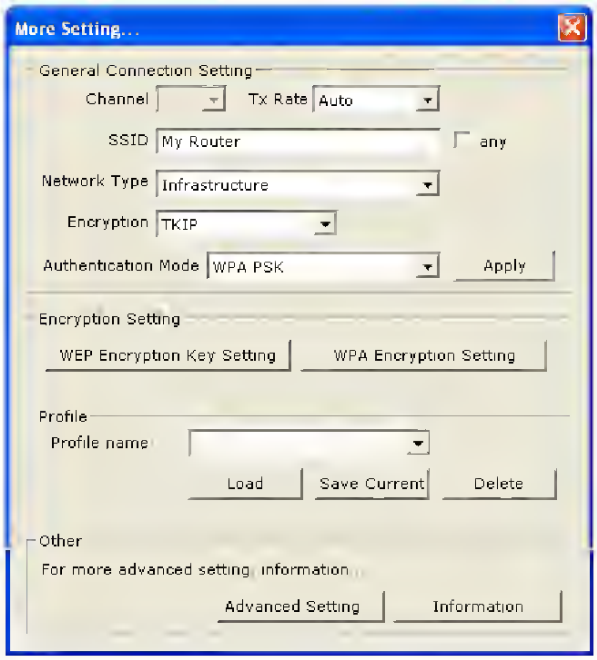
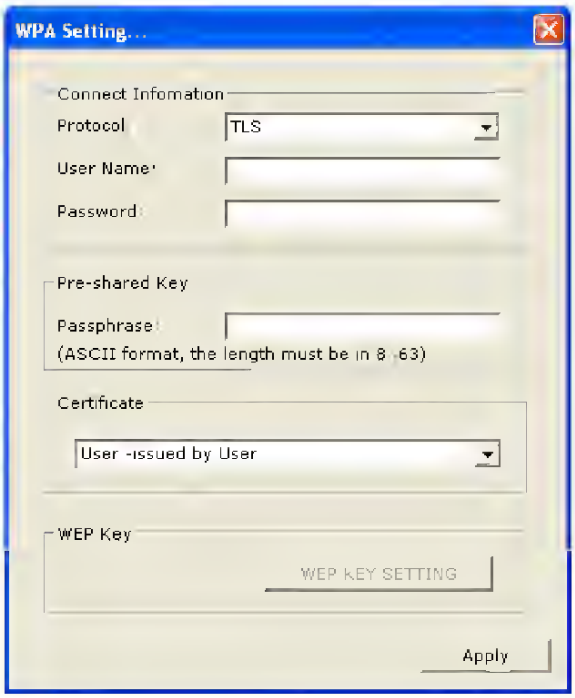
1. Select **TKIP** for Encryption, **WPA PSK** for Authentication Mode, and click **Apply**.



2. Click on **WPA Encryption Setting** and click **Change**.

3. Enter the appropriate passphrase in the **Passphrase** field under the **Pre-shared Key** section and click **Apply**. (The passphrase must be identical to the passphrase set on your wireless router/access point and it has to be between 8 to 63 ASCII characters long).



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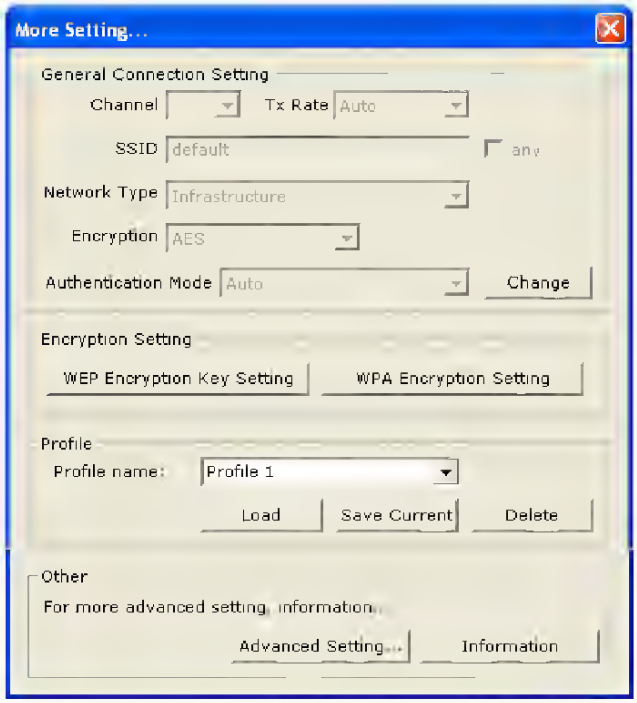
3.3 Configuring Profile



After you have configured all the settings, you can save your settings as a profile so you don't have to re-configure them the next time.

Type in a name for the profile in the **Profile name** field and click **Save Current**.

To load a profile, select the profile from the drop-down menu and click **Load**.

To delete a profile, select the profile from the drop-down menu and click **Delete**.

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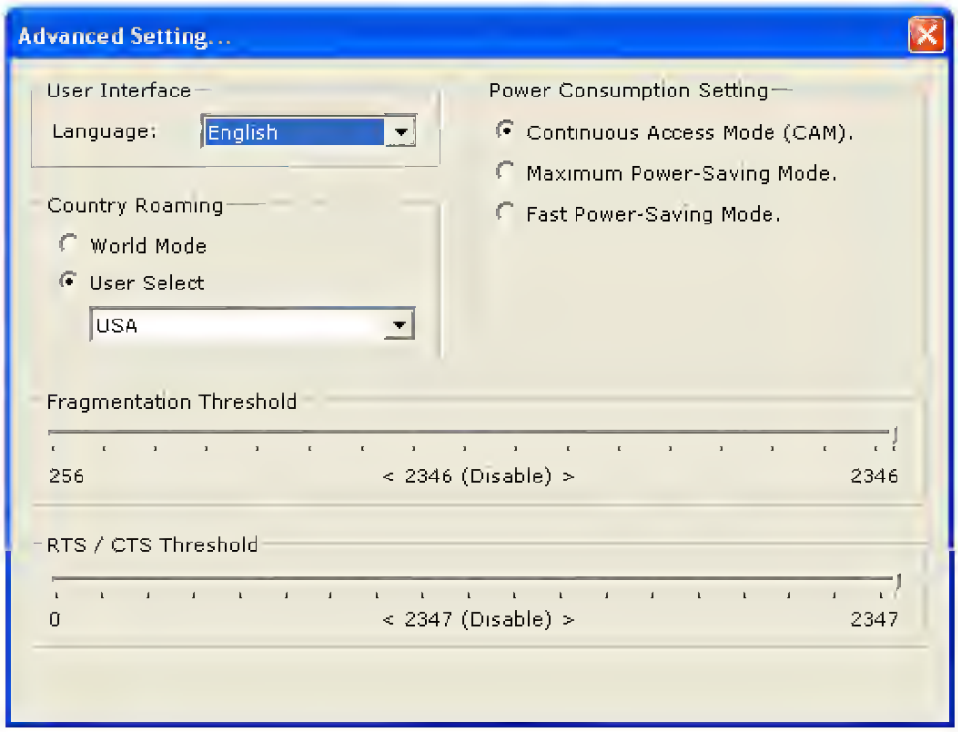
3.4 Advanced Settings

Click on **Advanced Setting** from the **More Setting** window to configure the adapter's advanced settings.



User Interface: select the language for the adapter's user interface.

Power Consumption Setting:

- **Continuous Access Mode**: provides the best signal throughput but least power save.
- **Maximum Power-Saving Mode**: provides the best power save but least throughput.
- **Fast Power-Saving Mode**: provides average power save and throughput.

Country Roaming: select the country you are in.

- **World Mode**: the adapter will get its country setting from the access point.
- **User Select**: choose your country.

Fragmentation Threshold: choose from 256 to 2346 bytes.

RTS/CTS Threshold: choose from 0 to 2347 bytes.

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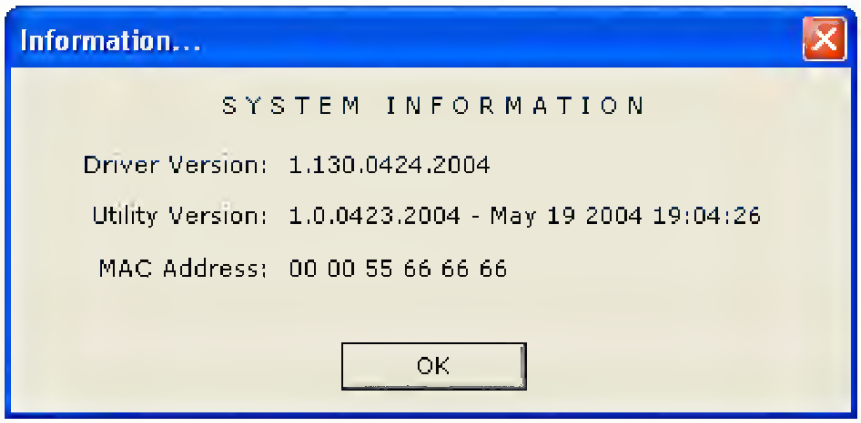
3.5 Information

Click on **Information** from the **More Setting** window to view the driver and utility's information.



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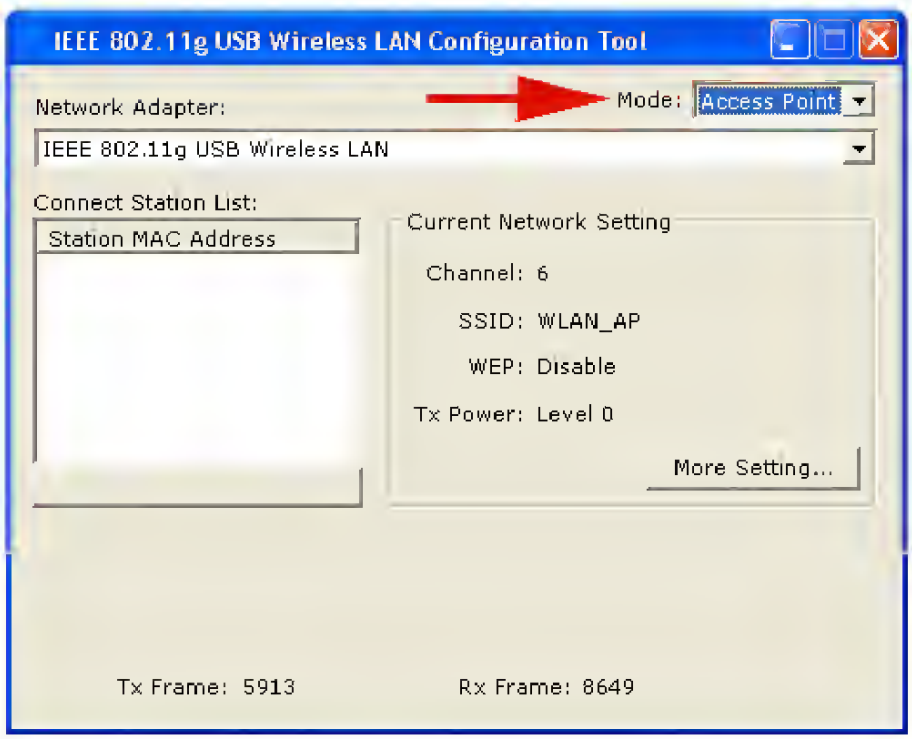
4. Configuring USB Adapter as an Access Point

4.1 Configuring Access Point

You can configure the USB Adapter as an access point for other wireless clients on your network.

Note: You will not be able to access the Internet if you configure the USB adapter as an access point. To allow other wireless clients to access the Internet, you will need to configure your computer as a router and a DHCP server. The vendor will not provide any technical support in regards to the USB adapter functioning as an access point.

Select **Access Point** from the Mode drop-down menu.



The default settings for the access point are as follows:

Channel: 6
SSID: WLAN_AP
WEP: Disable
Tx Power: Level 0

To configure the access point, click on **More Setting**.

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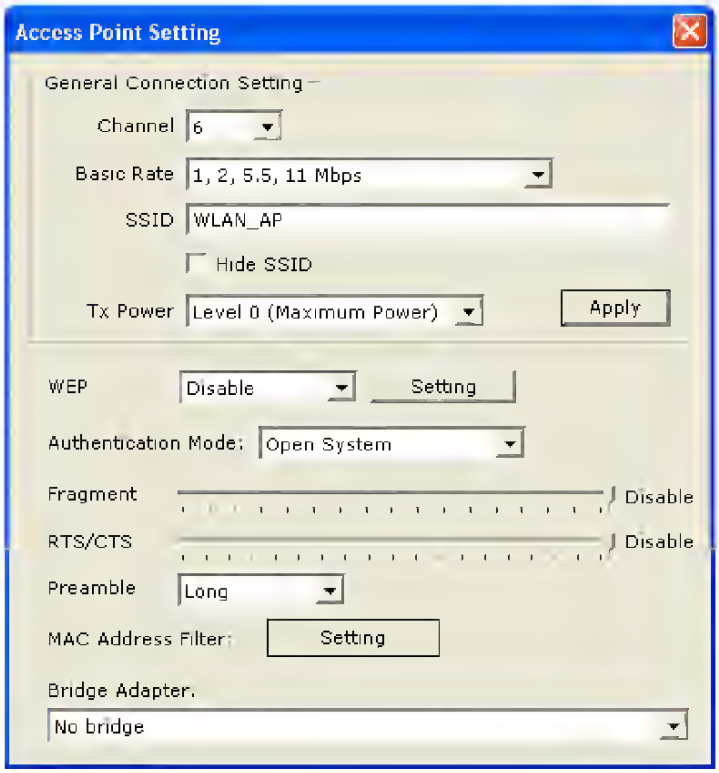

Click on **Change** to configure the settings.

Channel: select the channel you want to use.

Basic Rate: select the applicable transfer rate.

Tx Rate: select from Auto to 54 Mbps.

SSID: enter the desired SSID for the access point.

Hide SSID (check box): check to disable the broadcast of SSID.

Tx Power: select the transmission signal power.

Click **Apply** to submit the changes.

Bridge Adapter: If you have another Ethernet card installed in your computer, you can select the other Ethernet card as the bridge adapter. This will allow any wireless client that is connected to the access point to be bridged to the wired network that the other Ethernet card is connected to.

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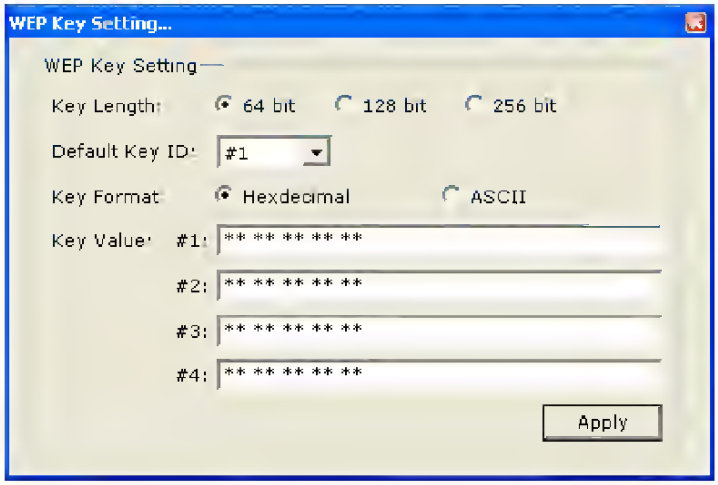
4.2 Configuring Encryption Security

Select **Enable** from the WEP drop-down menu and click **Setting**.


WEP Key Setting...
WEP Key Setting
Key Length: 64 bit 128 bit 256 bit
Default Key ID: #1
Key Format: Hexdecimal ASCII
Key Value: #1: ** ** ** ** **
#2: ** ** ** ** **
#3: ** ** ** ** **
#4: ** ** ** ** **
Apply

Key Length: Select the appropriate encryption key length.

Default Key ID: Select which of the four Key Value you want to use.

Key Format: Select either Hexadecimal (0-9, A-F) or ASCII (any number or letter).

Key Value: Enter the applicable key values. Up to four key values may be entered. Note the following rules when entering Key values:

- **64-bit** key length requires **10** Hexadecimal characters (0-9, A-F) or **5** ASCII characters (any number or letter).
- **128-bit** key length requires **26** Hexadecimal characters (0-9, A-F) or **13** ASCII characters (any number or letter).
- **256-bit** key length requires **58** Hexadecimal characters (0-9, A-F) or **19** ASCII characters (any number of letter).

Authentication Mode: select from **Open System** or **Shared Key**.

Fragmentation Threshold: choose from 256 to 2346 bytes.

RTS/CTS Threshold: choose from 0 to 2347 bytes.

Preamble: select **Long** or **Short**.

MAC Address Filter: click **Setting**.

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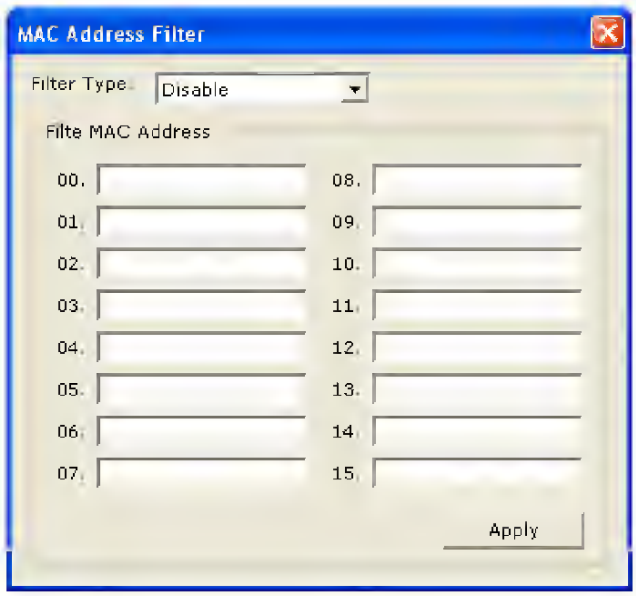
4.3 Configuring MAC Address Filter



Filter Type:

Disable: disables MAC address filter.

Accept: only accepts connection from the MAC address listed. (Connection attempts from MAC address not in the list will be rejected).

Reject: only rejects connection from the MAC address listed. (Connection attempts from MAC address not in the list will be accepted, provided the client matches the encryption settings as well).

Click **Apply** to submit the changes.

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5. Appendix

5.1 Specifications

Electrical Specifications	
Interface	USB 2.0 Standard, USB 1.1 Compliant
Standards Conformance	IEEE 802.11 / 802.11b / 802.11g, ARIB STD-T66 compliant
Data Transfer Rate	IEEE 802.11b : 1 / 2 / 5.5 / 11Mbps (auto sensing) IEEE 802.11g : 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54Mbps (auto sensing)
Access Method	Infrastructure Mode, Ad-Hoc Mode (802.11 Ad-Hoc), Roaming
Security	WEP 64/128/256-bit, TKIP, WPA, 802.11i
Frequency Range	IEEE 802.11b : 2.4 to 2.497GHz IEEE 802.11g : 2.4 to 2.4835GHz
Wireless Medium	OFDM & DSSS (with Barker coding and CCK for backward compatibility with 802.11b)
Modulation Method	IEEE 802.11b : DBPSK (1Mbps), DQPSK (2Mbps), CCK (5.5/11Mbps) IEEE 802.11g: BPSK (6/9Mbps), QPSK (12/18Mbps), 16-QAM (24/36Mbps), 64QAM (48/54Mbps)
Operating Channels	1~11 (U.S. & Canada), 1~13 (channel availability depends on local regulations)
Transmit Power	16 dBm (OFDM) / 18 dBm (CCK)
Receiver Sensitivity	1 Mbps : -88dBm 2 Mbps : -83dBm 5.5 Mbps : -79dBm 11 Mbps : -70dBm 12 Mbps : -76dBm 24 Mbps : -71dBm 36 Mbps : -67dBm 54 Mbps : -62dBm
Internal Antenna Type	Built-in Chip Antenna
LED Indicators	Power / Link
Power Consumption	-Power Save mode = 95mA -Standby mode = 2mA -Transmit mode = 400mA -Receive mode = 100mA
Operating systems	Windows 98 Second Edition, Windows ME, Windows 2000, Windows XP
Environmental & Mechanical Characteristics	
Operating Temperature	32 ℉ ~ 131 ℉ (0 ℃ ~ 55 ℃)
Storage Temperature	-13 ℉ ~ 158 ℉ (-20 ℃ ~ 70 ℃)
Operating Humidity	10% to 80% Non-Condensing
Storage Humidity	5% to 90% Non-Condensing
Dimensions	8.6 (H) x 22.5 (W) x 69.8 (L) mm

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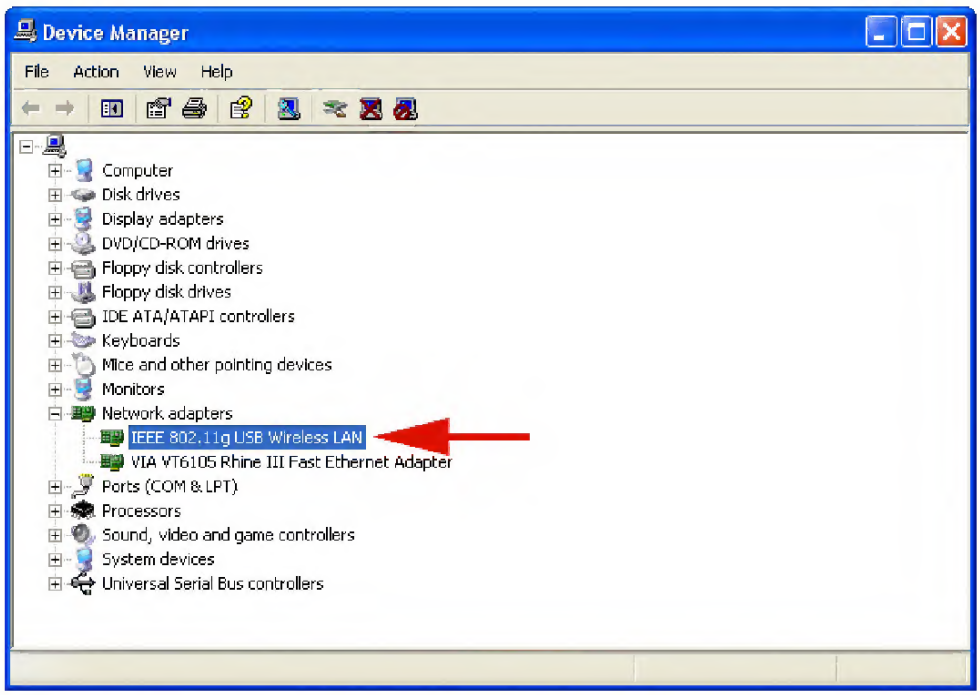
5.2 Troubleshooting

A. If the utility cannot be opened or it reports that the adapter is not found, uninstall the driver and utility and try installing again. You can also verify if the driver is installed properly in the Device Manager.

To access the Device Manager, right-click on **My Computer** on your desktop, select **Properties**. Go to the **Device Manager** tab. (For Windows 2000/XP, go to the **Hardware** tab first then click on the **Device Manager** button).



Expand **Network adapters** and you should see **IEEE 802.11g USB Wireless LAN**. If there is no yellow question mark or exclamation mark, the driver is installed properly.

B. If you do not see your wireless router/access point in the Available Network list, reset your wireless router/access point and click on **Refresh**.

C. If WEP is ON, it means that the wireless router/access point has encryption enabled. Be sure to set the identical encryption settings on the USB adapter's utility as well.

D. If the adapter has adequate signal strength and link quality, but cannot access the Internet, verify that you are able to obtain an IP address from your wireless router/access point.

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For Windows 98SE/ME

Step 1 Go to **Start**, **Run**, type **winipcfg** and click **OK**.

Step 2 Select the adapter from the drop-down menu and click **Release**.

Step 3 After the IP address is released, click **Renew**. You should get an IP address like **192.168.x.y** (where **x** and **y** are unique numbers assigned by your wireless router/access point). If you don't get an IP address, reset the wireless router/access point and then try **Renew** again.

For Windows 2000/XP

Step 1 Go to **Start**, **Run**, type **cmd** and click **OK**.

Step 2 At the command prompt, type **ipconfig/release** and press **Enter**.

Step 3 After the IP address is released, type **ipconfig/renew** and press **Enter**. You should get an IP address like **192.168.x.y** (where **x** and **y** are unique numbers assigned by your wireless router/access point). If you don't get an IP address, reset the wireless router/access point and then try **ipconfig/renew** again.

E. You must have USB 2.0 compatible hardware and install the latest USB 2.0 driver from Microsoft in order to reach the data transfer rate of 54 Mbps. If your hardware is not USB 2.0 compatible or you don't have the latest USB 2.0 driver installed, you will not reach 54 Mbps.

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Technical Support

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*Theoretical maximum wireless signal rate based on IEEE standard 802.11g specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, mix of wireless products used, radio frequency interference (e.g., cordless telephones and microwaves) as well as network overhead lower actual data throughput rate.

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